

India BioEconomy Report 2024

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India BioEconomy Report 2024: Key Insights

Context

The **India BioEconomy Report 2024**, released by the **Department of Biotechnology**, estimates India's bioeconomy at **\$165 billion**, contributing **4.2% of GDP**. The sector is projected to grow to **\$300 billion by 2030** and **\$1 trillion by 2047**.

What is Bioeconomy?

The **bioeconomy** involves the **industrial use of biological resources** (plants, animals, microorganisms) to create **sustainable products**. It has expanded beyond **healthcare and agriculture** to **biofuels, bioplastics, and construction materials**.

Key Developments

- **Ethanol** replacing hydrocarbon fuels.
 - **Synthetic biology** enabling biotech advancements.
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Growth & Sector-wise Contributions

- **Market Expansion:** Nearly **doubled in five years** (from **\$86 billion in 2020** to **\$165 billion in 2024**).
- **Employment:** Expected to create **35 million jobs by 2030**.
- **Sectoral Share:**
 - **Bio-manufacturing (Biofuels, Bioplastics): 47%**

- **Pharma (Vaccines, Biotech drugs): 35%**
 - **Research & IT (Bioinformatics, Clinical Trials): Fastest-growing**
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Challenges & Regional Disparities

- **Regional Imbalance:** Five states (Maharashtra, Karnataka, Telangana, Gujarat, Andhra Pradesh) dominate, while Eastern & Northeastern regions contribute less than 6%.
 - **Regulatory Delays:** Hurdles in GM crops and biotech approvals.
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BioE3 Policy & Government Initiatives

- **BioE3 Policy (2024):** Aims to make India a global biotech hub.
 - **Assam** first to adopt BioE3 framework.
 - **Startup Growth:** 10,075 biotech startups (up from 50 in 2014).
 - **R&D Boost:** ₹1,27,381 crore spent in 2024, doubling since 2014.
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Breakthroughs & Future Prospects

- **Nafithromycin:** First indigenous antibiotic for respiratory diseases.
- **Gene therapy trials** for hemophilia.
- **Genome sequencing project** mapping 10,074 individuals.
- **Space Biotechnology:** Collaboration with ISRO for astronaut health research.

Way Forward

- **National BioEconomy Mission** for policy coordination.
- **Single-window clearance** for biotech regulations.
- **Expanding bio-manufacturing** beyond leading states.
- **Skill development** in synthetic biology & bioinformatics.

Conclusion

India's **bioeconomy is growing rapidly**, surpassing targets and **creating jobs**. With the right policies, **it can become a global leader by 2047**.

